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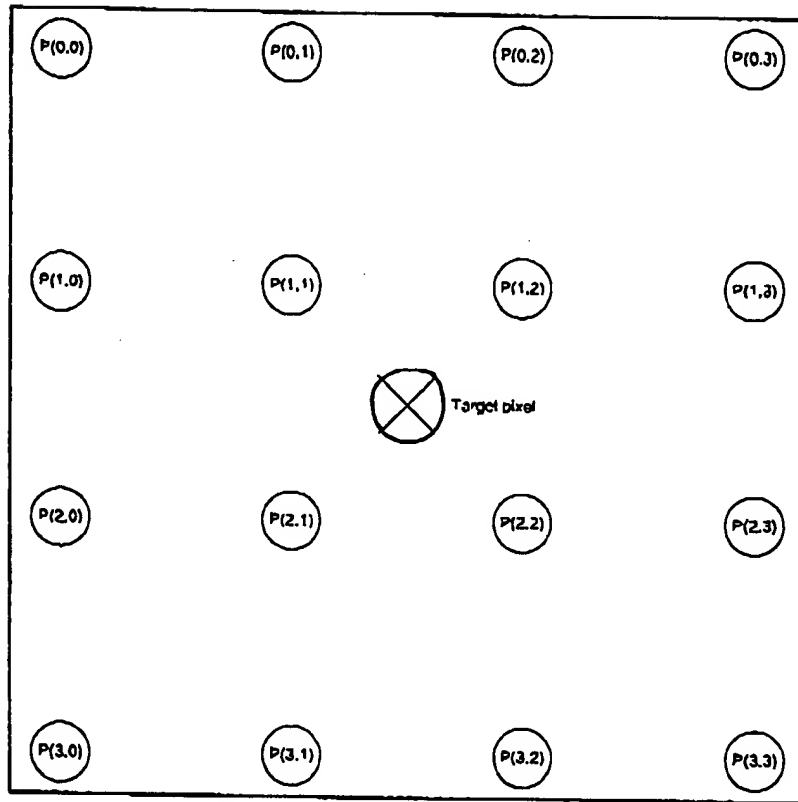


Figure 1: Target Pixel Interpolation

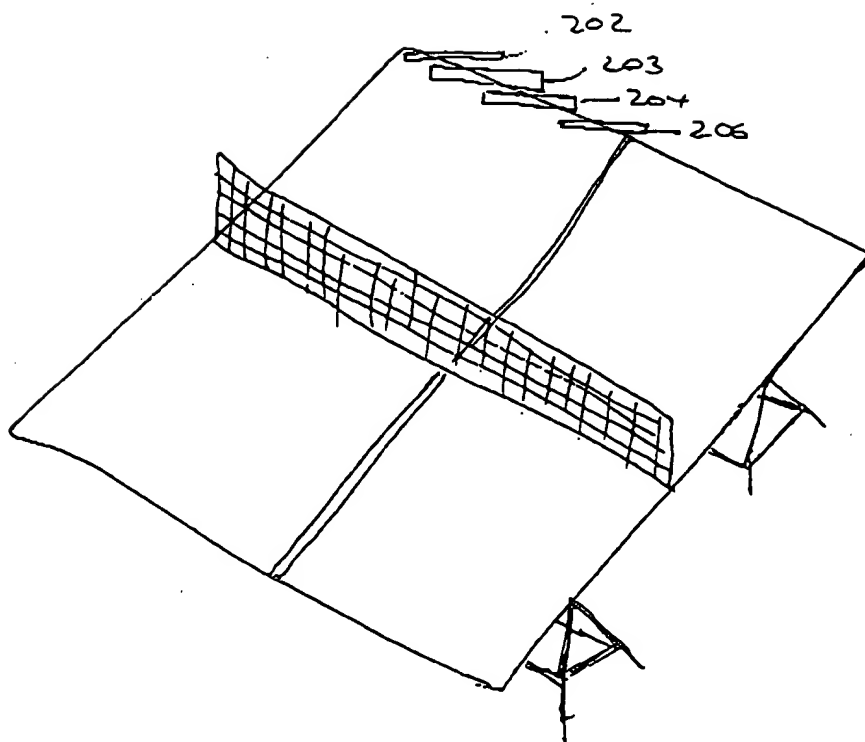


Fig 2(a)

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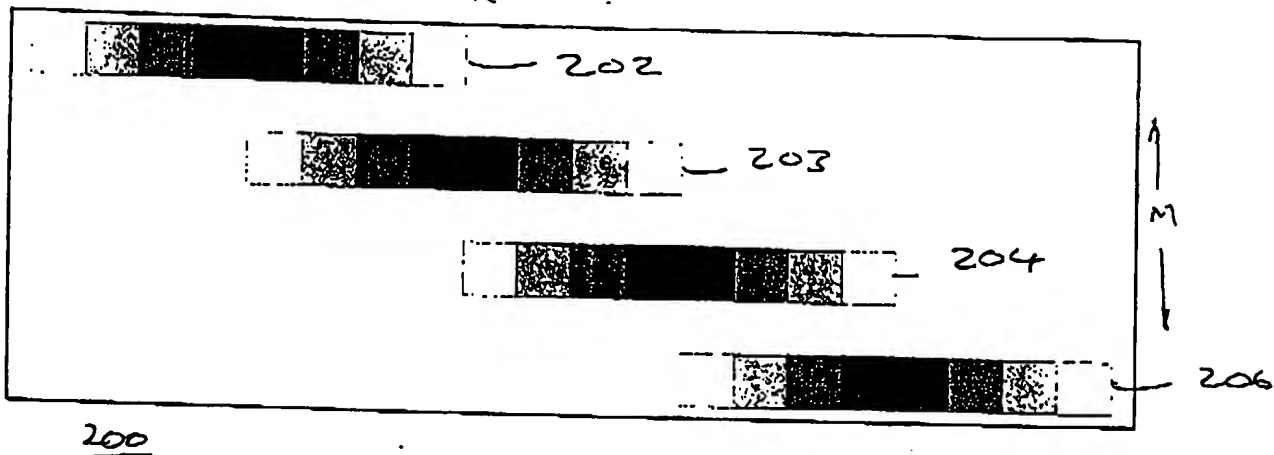


Figure 2(b) Digitized diagonal line with transition regions.

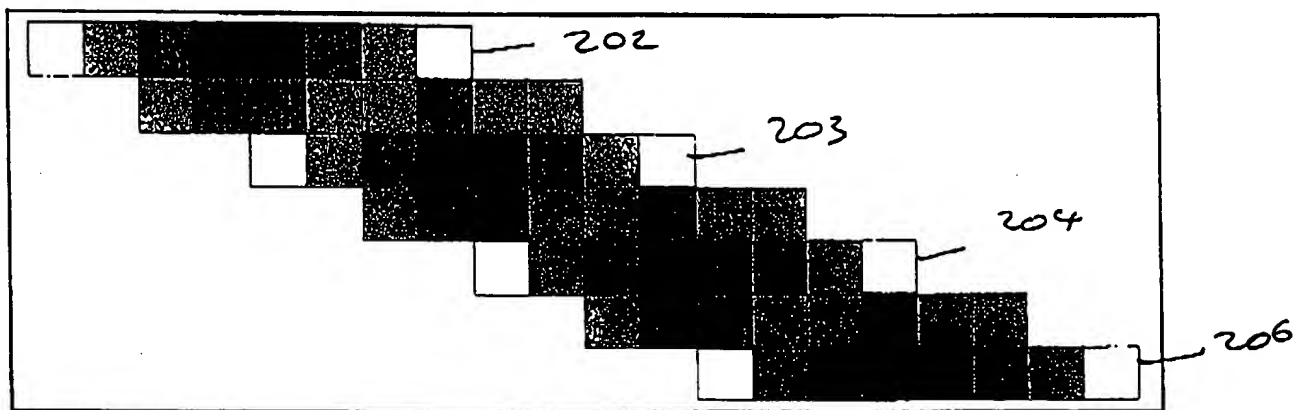


Figure 2(a) Deinterlacing using a vertical filter

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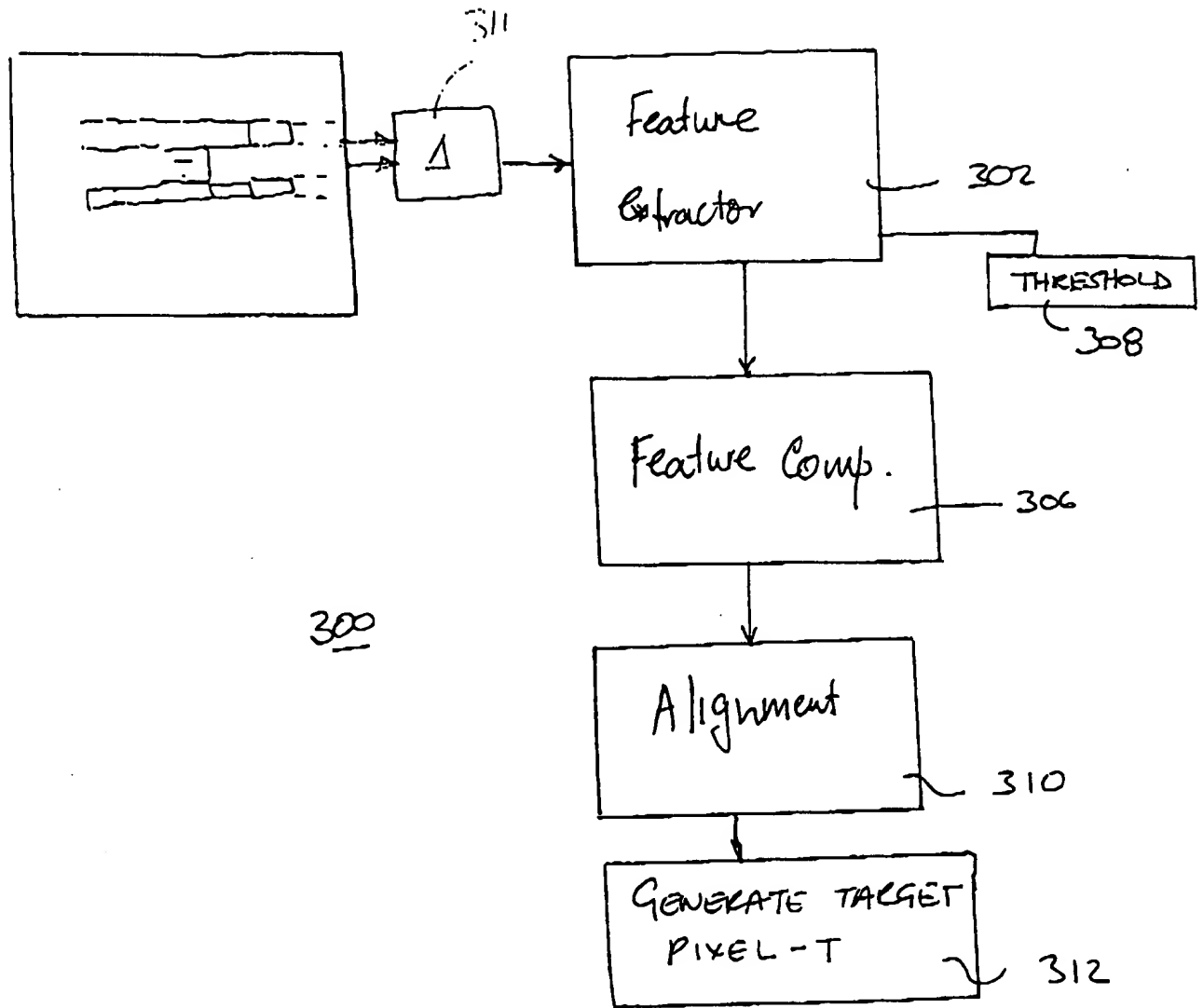


Figure 3.

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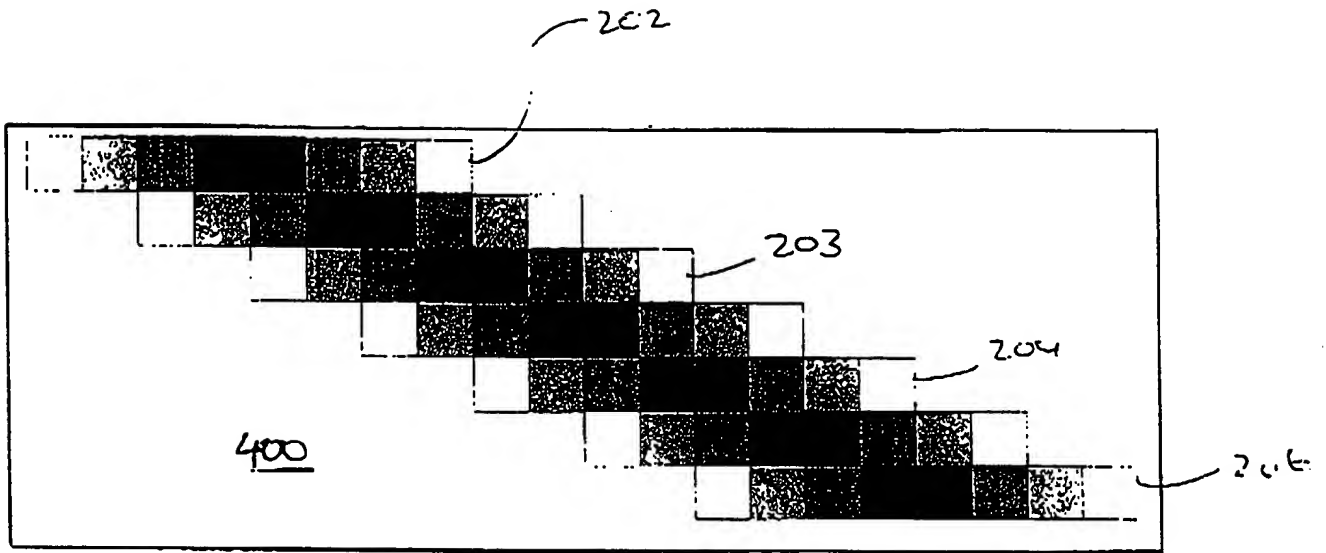


Figure 4: Long-gap interpolation

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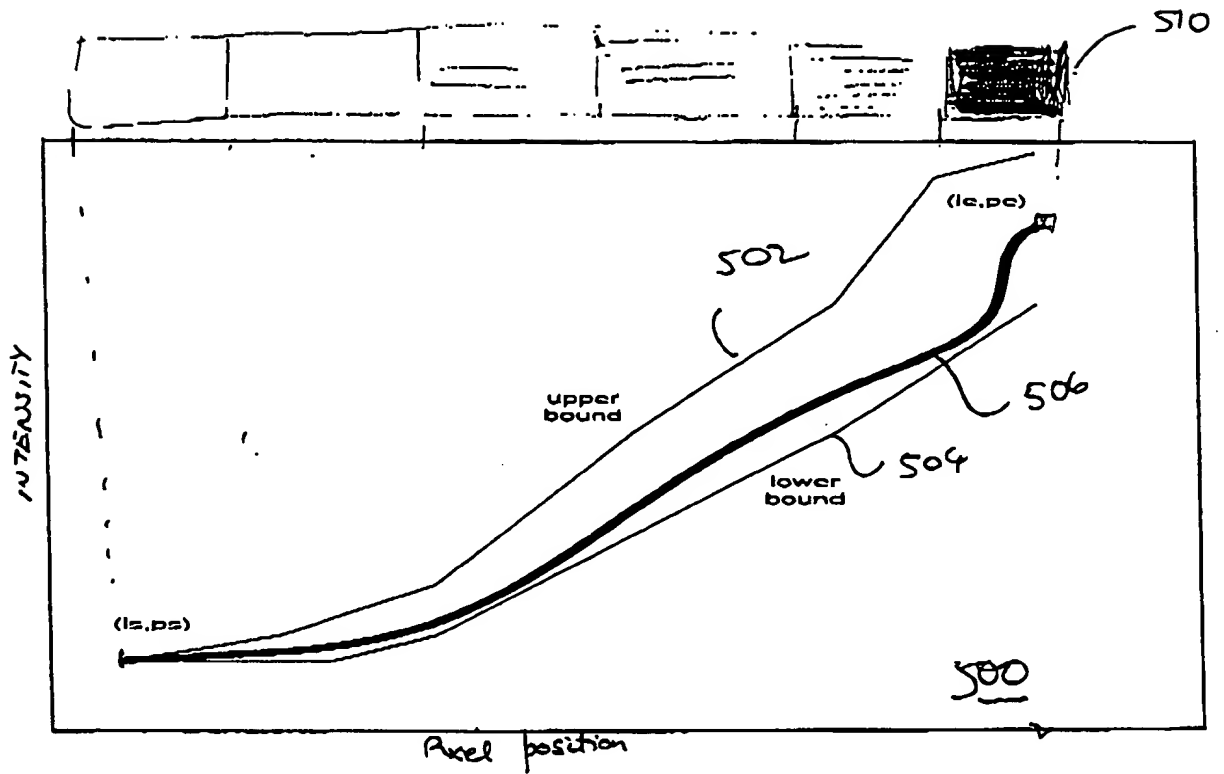


Figure 5: An upward ramp of intensity values

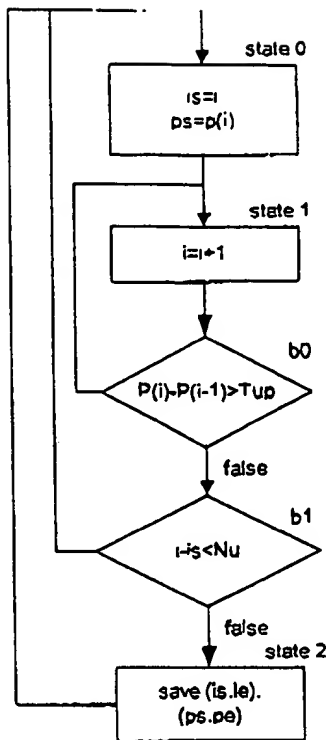
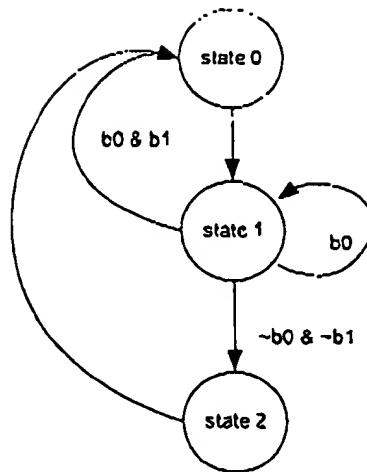


Figure : Flowchart for Upwards ramp feature extraction.

6(a)

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Boolean Conditions

$$b0 = (P(i) - P(i-1)) > Tup$$

$$b1 = (i - i5 < Nu)$$

Bubble diagram for Upwards ramp feature extraction.

Figure 6(b)

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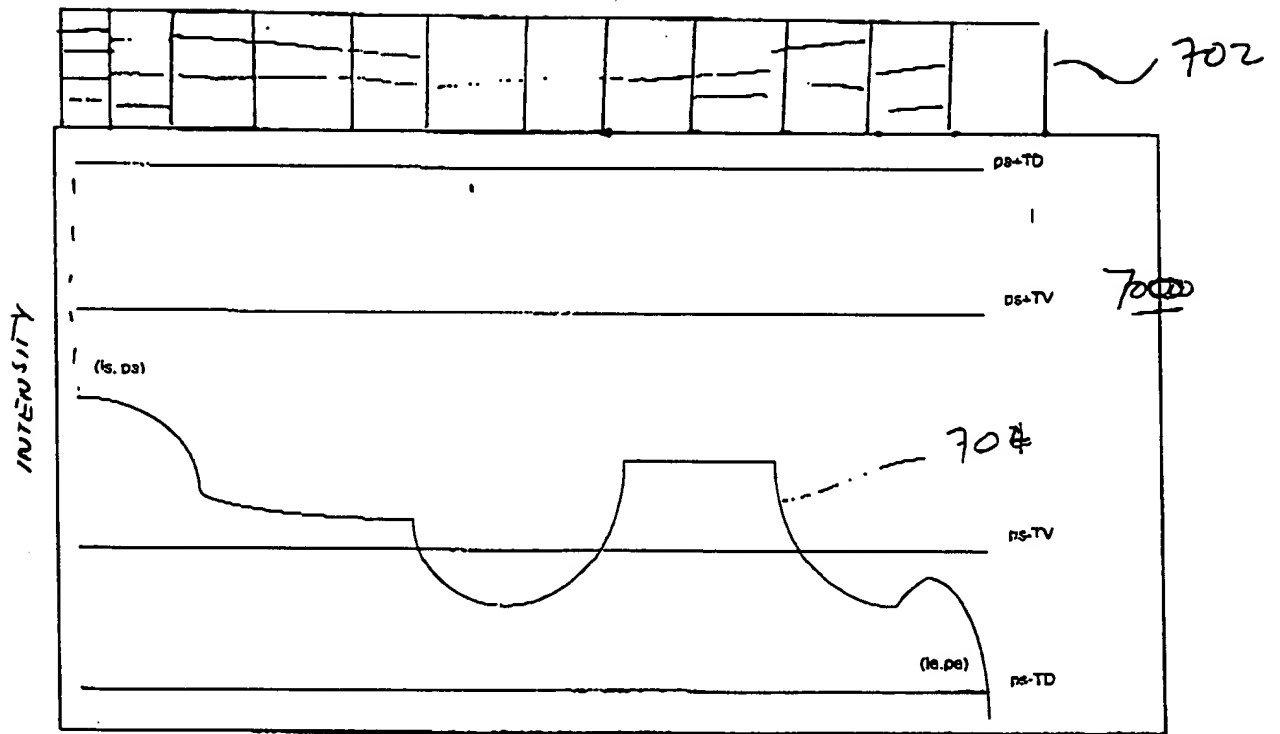


Figure 7(a) Graphical illustration of a possible definition of a "Level" segment.

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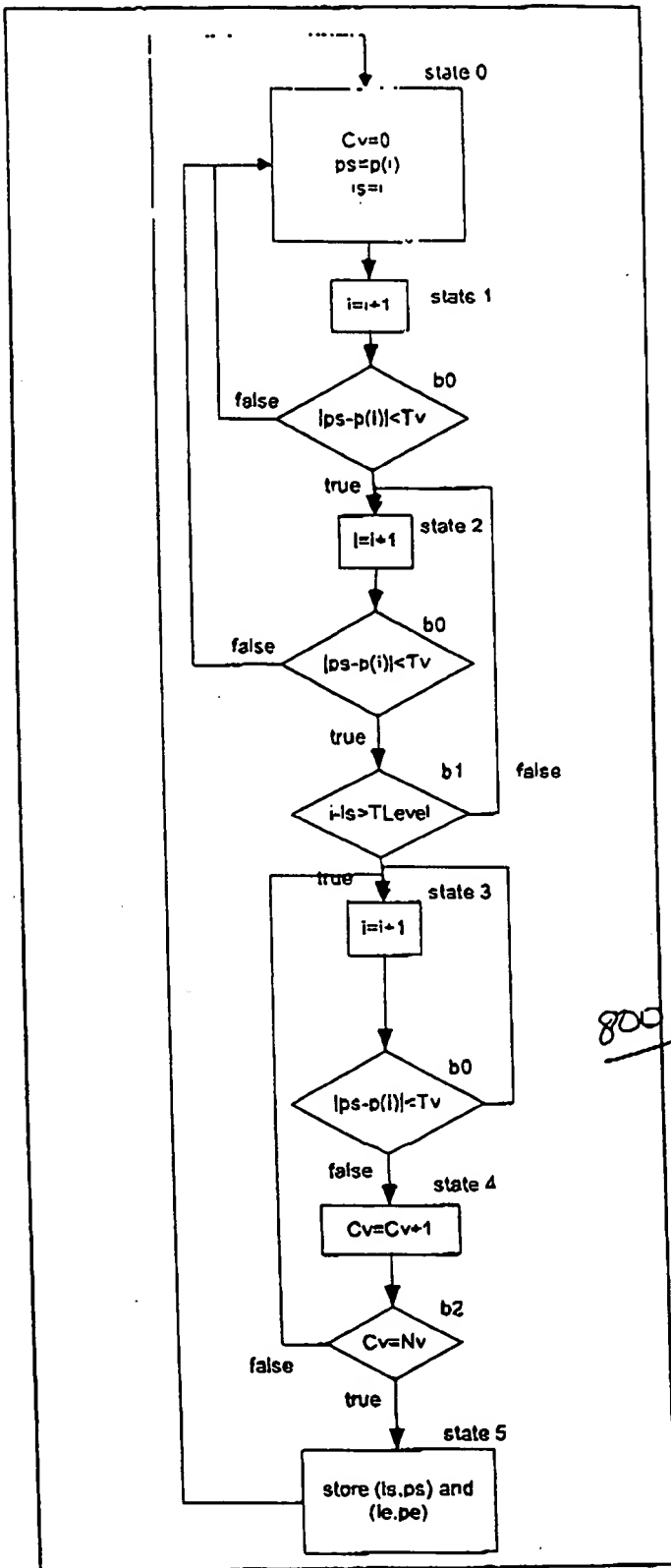


Figure 8(a) Flow chart for a state machine for processing a Level segment

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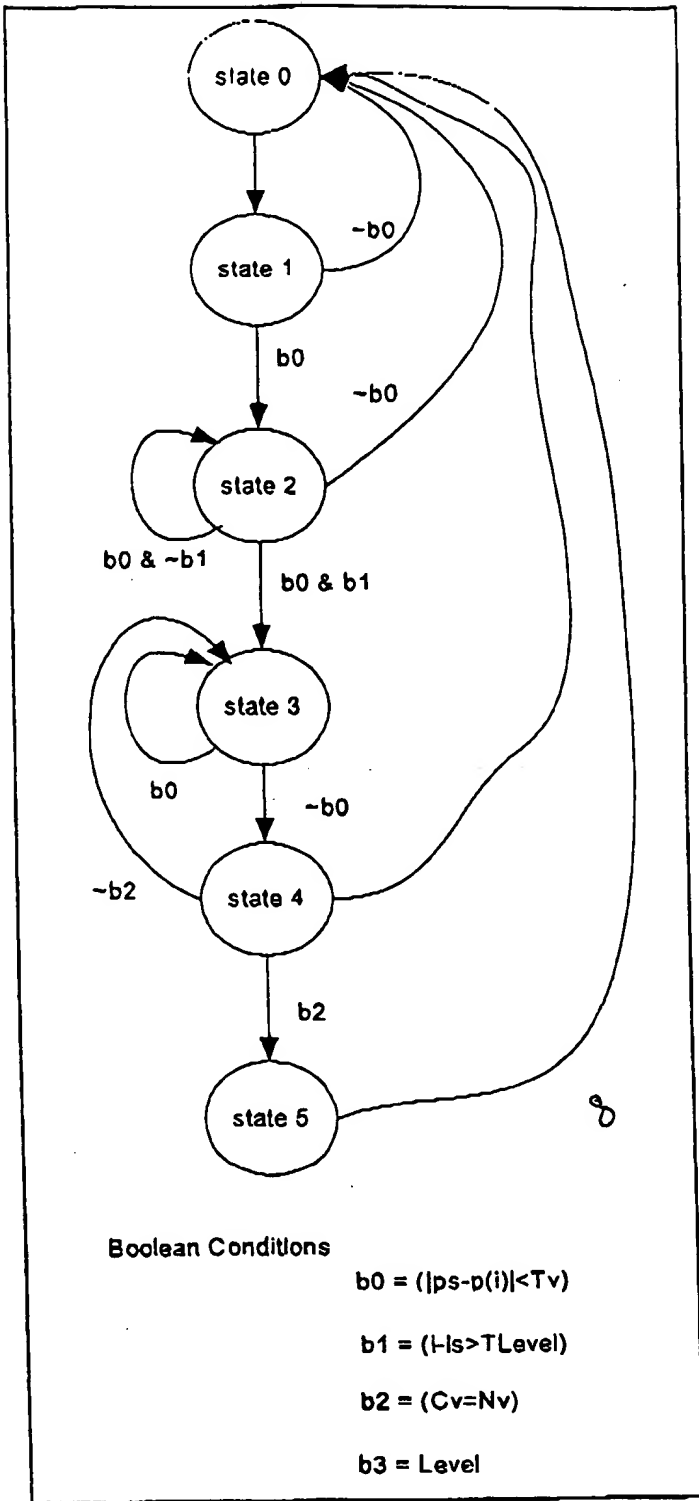


Figure 8(b) State machine bubble diagram representation of Level Segment flowchart of Figure 7.

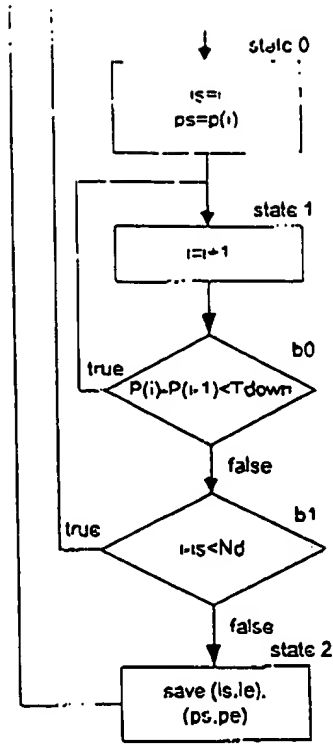
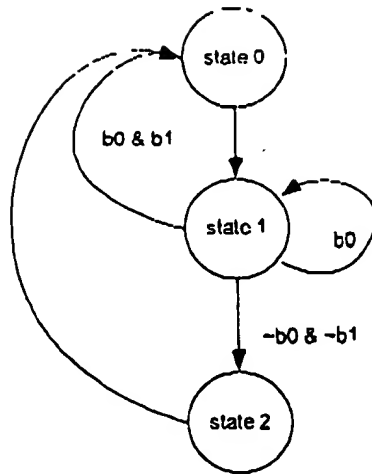


Figure 9caj Flowchart for Downwards ramp feature extraction.

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Boolean Conditions

$b0 = (P(i) - P(i-1) < T_{down})$

$b1 = (i - Is < Nd)$

Figure 9(b) State machine bubble diagram representation of Downwards Ramp Segment flowchart of Figure 9(a)

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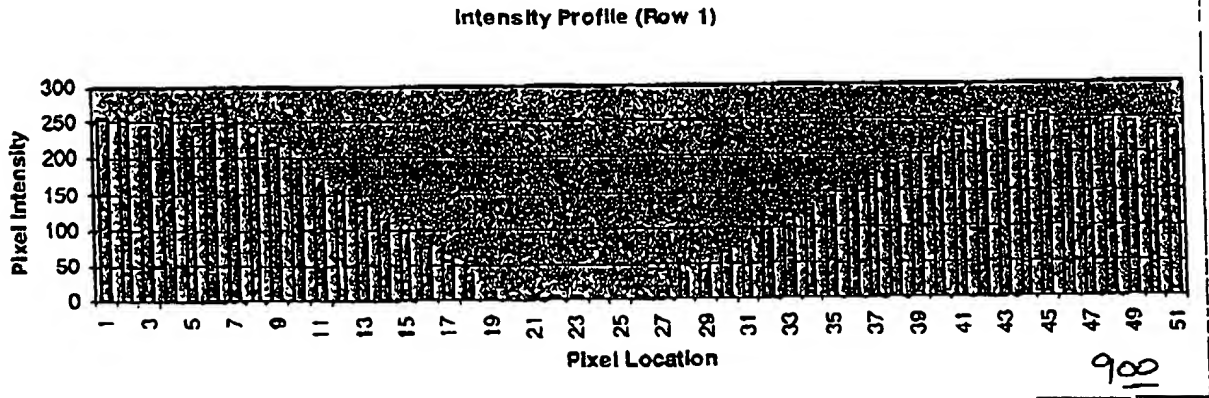


Figure 10(a)

Intensity Profile of a row in a raster image.

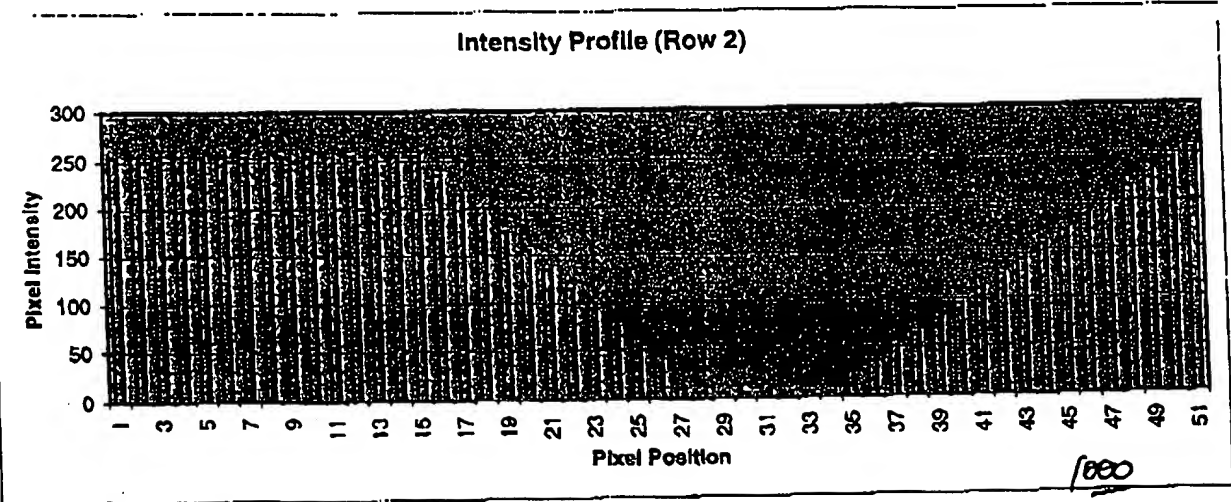
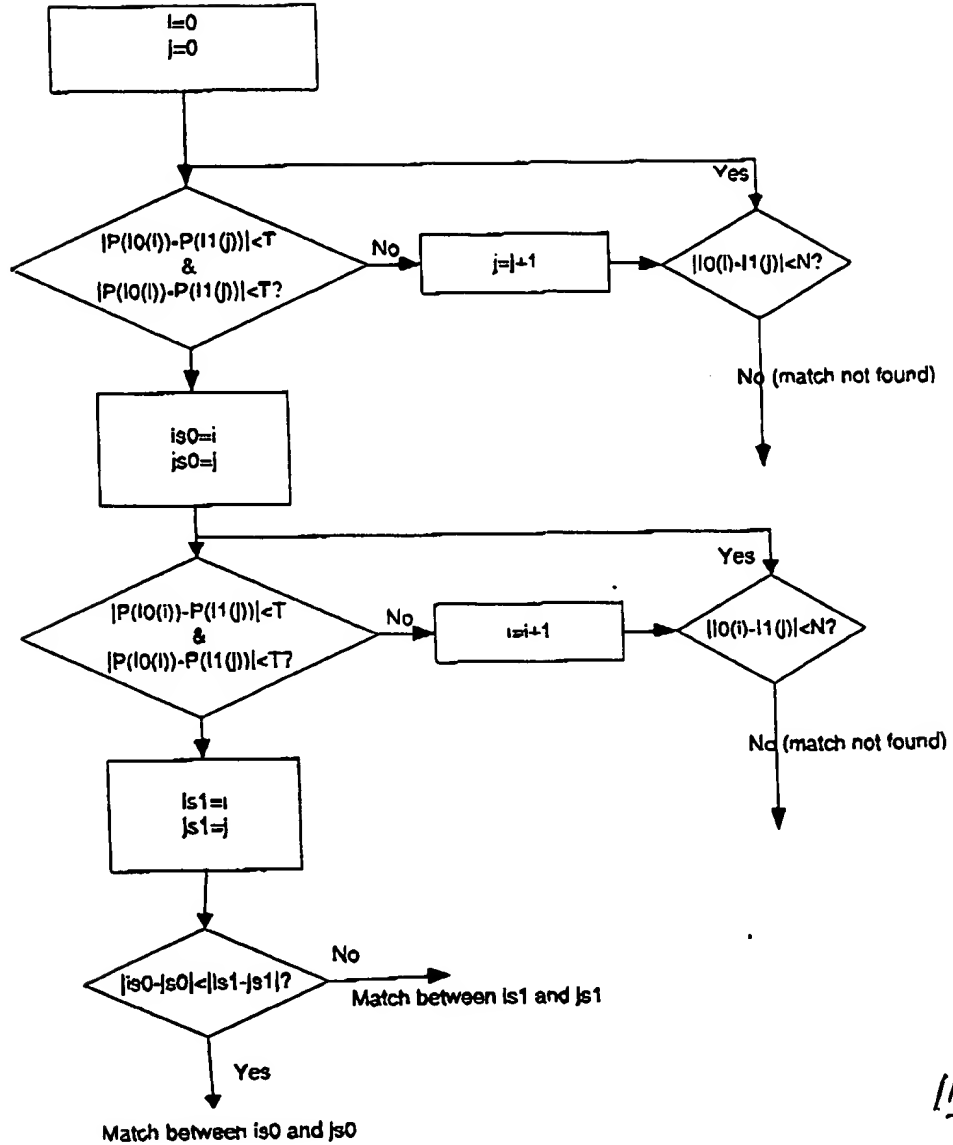


Figure 10(b)

Intensity Profile for line 2

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Figure 11: Match acquisition flowchart (Algorithm 2)

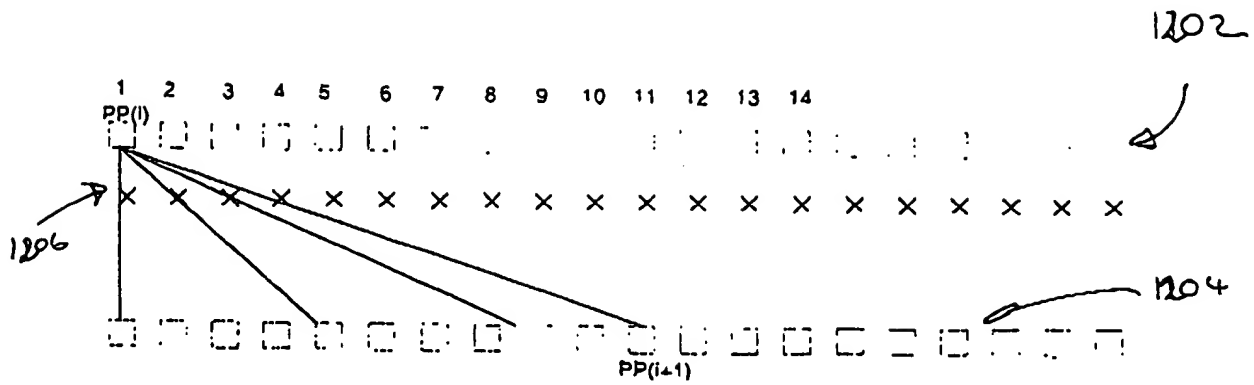


Figure 12: Interpolating using the pivot pixel

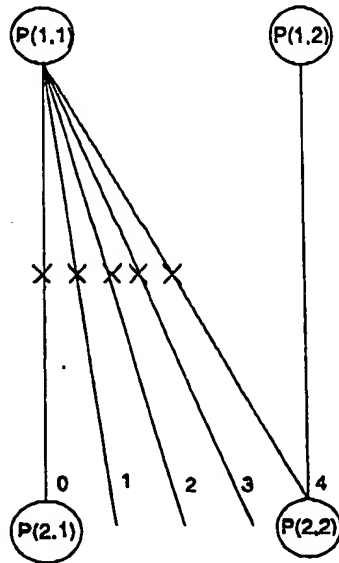


Figure 13: Sub-pixel interpolation with target pixel at $\phi = 0.5$.

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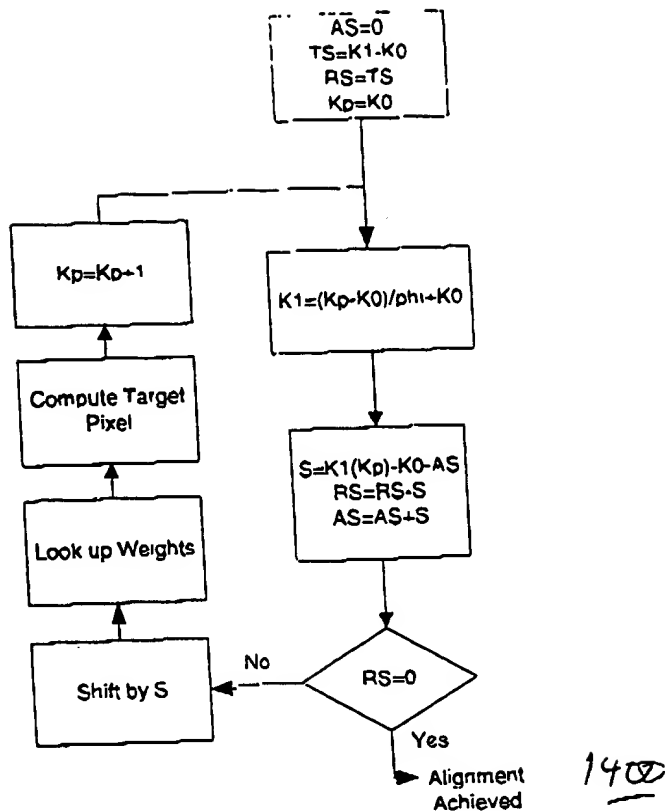


Fig 14

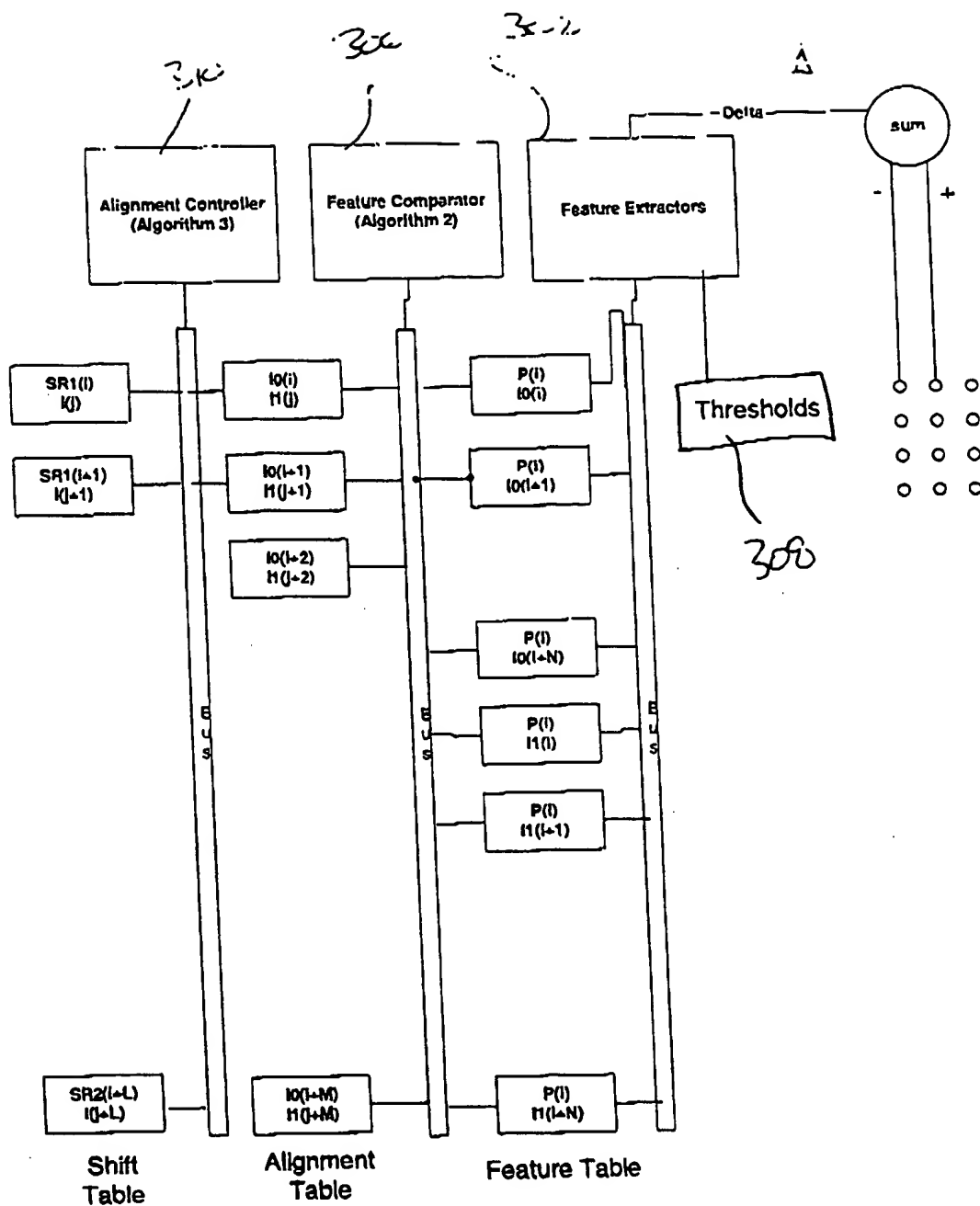


Figure 15: Circuit diagram of major functional components needed for the hardware implementation of the Long Gap algorithm.